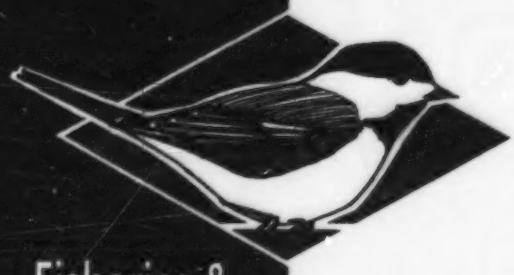

Fisheries & Wildlife Management Division

RESOURCE STATUS AND ASSESSMENT BRANCH

2000/2001 Progress Report on Caribou Research in West Central Alberta

Alberta Species at Risk Report No. 23

Alberta

2000/2001 Progress Report on Caribou Research in West Central Alberta

Tara Szkorupa

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DISCLAIMER

The views and opinions expressed are those of the author(s) and do not necessarily represent the policies or positions of the Department or the Alberta Government.

EXECUTIVE SUMMARY

The West Central Alberta Caribou Standing Committee (WCACSC) is comprised of government biologists, foresters, and land-use specialists, in addition to representatives from industries operating within woodland caribou (*Rangifer tarandus*) ranges in west central Alberta. Given that caribou are a threatened species in Alberta, this committee is focused on ensuring that industrial activities do not compromise the long-term integrity of caribou habitats and populations. To achieve this goal, the committee requires information on the ecology of caribou in the region. The research sub-committee of the WCACSC has focused on four main questions that are central to integrating industrial activity with caribou management: 1) What are current and past caribou population trends? 2) How do caribou respond to human activity? 3) How do the caribou's main predator, wolves, use a landscape modified by humans? and 4) What habitats do caribou require across a range of environmental conditions?

In 2000/2001, the Alberta Government's Endangered Species Program provided funding to study wolves (questions 3) and caribou habitat requirements (question 4). To learn about wolves, researchers deployed radio-collars on eight wolf packs. Researchers studied caribou habitat selection by following caribou tracks and collecting habitat information. During 2000/2001, the research team was successful in collaring and obtaining data on 15 wolves and performing over 40 caribou tracking sessions.

Data collected as a result of this work will be analysed primarily by researchers at the University of Alberta, and will be available to the public through graduate study dissertations, publications, presentations and documents produced by the WCACSC.

Both the wolf and habitat research will provide critical information, not only for the WCACSC, but also for Alberta's endangered species recovery process. A provincial recovery team will begin planning efforts in 2001, and will use research findings to make knowledge-based decisions. Habitat requirements and predation are key components affecting the status of caribou in Alberta and knowledge about these components will contribute to a successful recovery plan.

1.0 INTRODUCTION

The West Central Alberta Caribou Standing Committee (WCACSC) was formed in 1992, in response to Alberta Government policy stipulating that industrial activities can continue on woodland caribou (*Rangifer tarandus*) ranges only if the integrity of the range is maintained for caribou (Alberta Energy 1991). The committee is comprised of government and industry representatives focused on integrating industrial activities with caribou conservation. To achieve this goal, it is imperative that the committee has an understanding of the effects of industrial activity on caribou.

Research is a major component of the WCACSC since the committee believes that better management can be achieved through knowledge-based decision making. Research direction is provided through the WCACSC research sub-committee.

In the past few years, the committee has combined historic and new data to document the stable to declining status of west central Alberta populations (Dzus 2001). This information was key in reassessing the status of caribou in the province. Recent research has also demonstrated that caribou in west central Alberta avoid roads (Oberg et al. in press), another important piece of information for caribou management.

Caribou were listed as a threatened species in the *Alberta Wildlife Act* in 1985. Recent population declines and continued threats to habitat have spurred the provincial Endangered Species Conservation Committee (ESCC) and its Scientific Subcommittee (SSC) to suggest a renewed designation of threatened.

Research continued this past year on two priority areas for improving management of caribou ranges. First, research was conducted on wolves to investigate linkages between industrial land use and the distribution of wolves and their kill sites. This research will provide crucial information for industrial land-use planning by determining the type and intensity of human use that may contribute to unsustainable predation rates on caribou. The second research area involved analyses of caribou habitat requirements. This information is critical for maintaining sufficient supplies of caribou habitat over time.

Population monitoring was another important research activity in 2000/2001. Population monitoring allows managers to track caribou population trends, a key aspect of species status assessment. This information is also important for the provincial caribou recovery process, which is expected to begin this year.

Funding from the Alberta Government's Endangered Species Program was provided for the wolf and habitat research components. Therefore these two components will be focused on in the remainder of this report.

2.0 STUDY AREA

In west central Alberta there are three populations of the mountain ecotype of woodland caribou: Narraway, Redrock/Prairie Creek and A la Peche (Figure 1). These animals calve and spend their summers in the sub-alpine and alpine areas of the Rocky Mountains (Brown and Hobson 1998). In the winter, these populations have historically migrated out into the upper and lower foothills, although in recent years most of the A la Peche caribou have remained in the mountains. West central Alberta is also home to one population of boreal caribou: the Little Smoky. The Little Smoky caribou do not migrate, and remain in the forested foothills environment year-round (Brown and Hobson 1998).

The caribou ranges support populations of moose (Alces alces), elk (Cervus elaphus), mule deer (Odocoileus heminus), white-tailed deer (Odocoileus viginianus), bighorn sheep (Ovis canadensis) and mountain goat (Oreamnos americanus). Other large mammals include coyotes (Canis latrans), wolves (Canis lupus), grizzly bears (Ursus arctos), black bears (Ursus americanus) and cougars (Felis concolor).

The main conifer species are black spruce (Pice mariana), lodgepole pine (Pinus cortorta) and white spruce (Picea glauca), with engelmann spruce (Picea engelmannii) and subalpine fir (Abies lasiocarpa) at higher elevations. Treed muskegs are more prevalent in the Little Smoky range than in the foothills (Rowe 1972). The major arboreal lichens are Bryoria spp. and Usnea spp., while the main terrestrial lichens are Cladina app., Cladonia spp., Cetraria spp. and Peltigera spp. Industrial use includes forest harvesting, oil & gas exploration/development, and coal mining. The area is also used for both motorised and non-motorised recreation. The caribou ranges have a sub-arctic climate with short, cool wet summers and long cold winters.

3.0 METHODS

Research on wolves was conducted in the Redrock/Prairie Creek and Little Smoky ranges. Observers, travelling in a fixed wing aircraft, located wolves by following tracks in the snow. The capture team caught wolves using a combination of net-gunning and restraining forks. Researchers then immobilised wolves with Telazol before collaring and taking measurements. Attempts were made to capture the alpha male or female within a pack. Both GPS (Global Positioning System) and VHF (Very High Frequency) collars were deployed. Wolves were monitored by helicopter over the winter to ensure GPS collars were functioning, to upload data from GPS collars, and to track wolf mortality.

Caribou habitat research was carried out in the Redrock/Prairie Creek winter range. Data on habitat requirements for foraging were collected by snowtracking. Radio-collared caribou were located from the air to provide starting points for tracking sessions. Tracks were followed and habitat information was recorded at cratering sites (areas where caribou were digging for forage beneath the snow), arboreal lichen feeding sites and at sites where caribou were not feeding. Habitat information included snow conditions, forest cover, understory cover, arboreal lichen growth and topography.

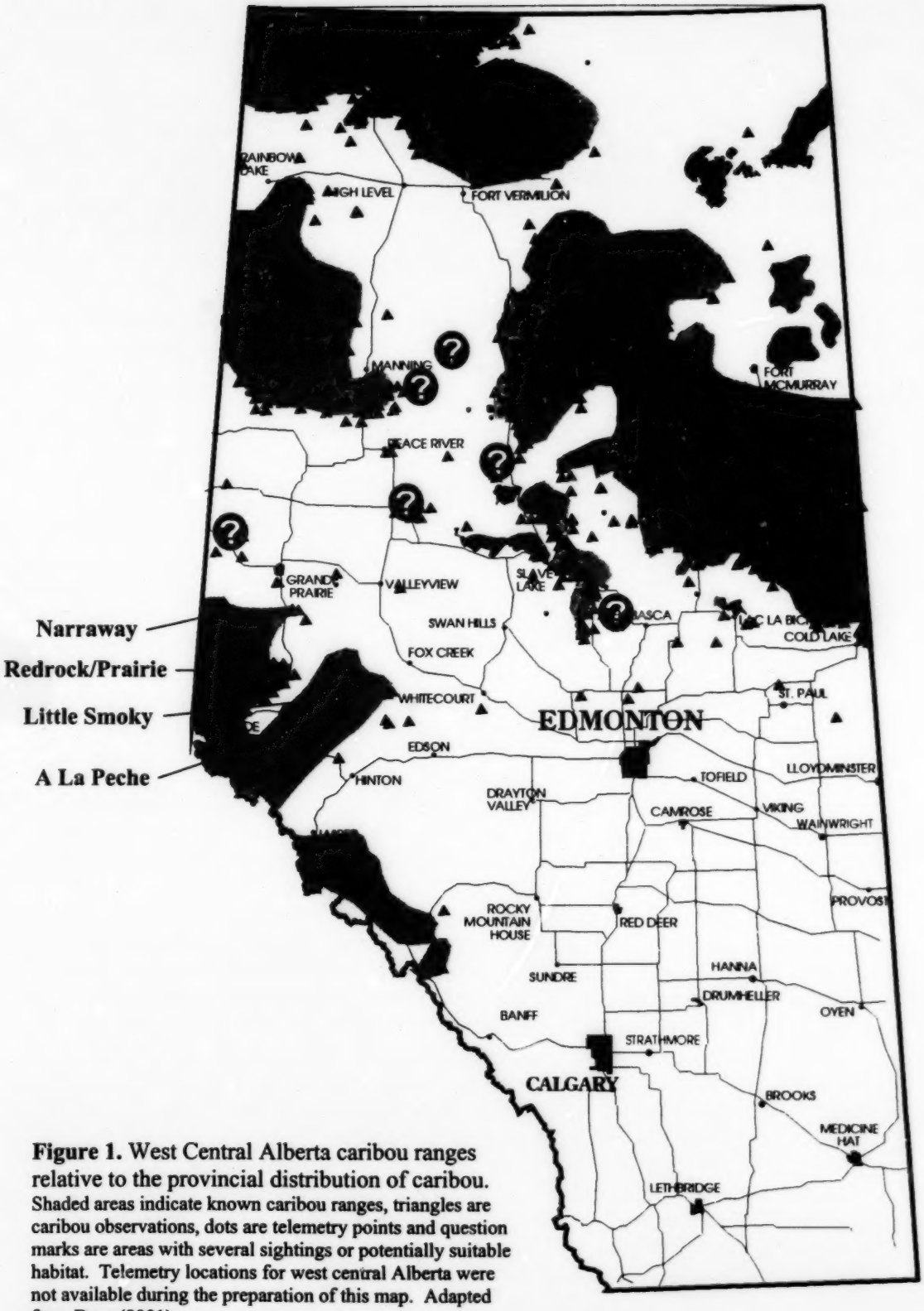

Figure 1. West Central Alberta caribou ranges relative to the provincial distribution of caribou. Shaded areas indicate known caribou ranges, triangles are caribou observations, dots are telemetry points and question marks are areas with several sightings or potentially suitable habitat. Telemetry locations for west central Alberta were not available during the preparation of this map. Adapted from Dzus (2001).

4.0 RESULTS

This year, another 10 GPS collars and 5 VHF collars were deployed on wolves in the Redrock and Little Smoky caribou ranges. This raises the total number of wolves that have been collared to 30. There are now collars on wolves within eight different packs.

The data collected on wolves will be compiled and analysed primarily by graduate student researchers at the University of Alberta. Specifically, researchers will document natural history information, such as pack size and territories, and will determine how wolves use caribou range landscapes modified by human activity.

Over 2.5 months, researchers studying caribou habitat selection conducted more than 40 tracking sessions averaging 2 km per tracking session. Researchers at the University of Alberta will analyse the habitat data in detail.

Components of both the wolf and caribou habitat studies will be presented at conferences, published in scientific journals and compiled in graduate dissertations. A process is also underway to have all caribou data collected by the WCACSC integrated into the Alberta Government's new FWMIS database.

5.0 DISCUSSION

Research on wolves in west central Alberta will provide detailed information on how wolves use a landscape modified by humans. Since wolves are the caribou's main predator, and contribute to caribou population declines, knowledge about the effects of human activities on wolf/caribou interactions is instrumental as we plan for the needs of caribou. To ensure the long-term persistence of caribou, human development must be kept to a level that does not facilitate unsustainable predation rates. So far, researchers have discovered that wolf packs are fairly large, averaging eight members per pack with a maximum of 18 members. Before this research, very little was known about pack size, kill rates and territory locations in west central Alberta. This baseline information is highly valuable, but there are still questions that must be answered. In particular, it will be important for future research to document summer wolf movements in a landscape with human activity. In the Little Smoky range, the caribou remain year-round in habitats that overlap with wolves. This population is the most severely threatened in the province and a greater understanding of the predators in their range will contribute to better management. There are also opportunities to compare the behaviour of different wolf packs with varying amounts of industrial activity within their territories. More information is also needed on the relationship of wolves, caribou and other wild ungulates to specific habitat types. Wolf research conducted in 2000/2001 has provided a base from which further key questions can be investigated.

The caribou habitat selection study will provide information about caribou habitat needs under a range of environmental conditions. This information will assist managers in planning for the suite of habitats required by caribou populations. Managers must maintain sufficient habitat so that caribou can spread out in their preferred habitat and

avoid predators such as wolves. Living at low densities is an anti-predator tactic critical to the persistence of caribou populations. Habitat information is urgently needed for the caribou recovery process, since planning for long-term habitat supply will be a major planning tool.

In summary, research focused on wolves and caribou habitat requirements in west central Alberta has provided valuable information that will aid in recovering caribou populations. Caribou are a threatened species in Alberta, and it is necessary to maintain sufficient habitat and avoid unsustainable predation rates. As we move towards a caribou recovery process in Alberta, knowledge on caribou ecology is needed to create a successful recovery plan.

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